Amendments to the Claims:

1-20) (withdrawn)

21. (original) An apparatus for providing Media Access Control (MAC) based transmission in a Wave Division Multiplexing (WDM) optical network, comprising:

a first wavelength based multiplexing/demultiplexing device comprising a first add module and a first drop module, wherein said first drop module is adapted to drop a first channel from a first ingress multi-wavelength input transmitted over a first fiber ring and wherein said first add module is adapted to add a second channel onto a second egress multi-wavelength output transmitted over a second fiber ring;

a second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module, wherein said second drop module is adapted to drop a third channel from a second ingress multi-wavelength input transmitted over said second fiber ring and wherein said second add module is adapted to add a fourth channel onto said first egress multi-wavelength output transmitted over said first fiber ring;

a first MAC module comprising a first transmitter and a first receiver, wherein said first transmitter is adapted to provide said second channel added by said second add module and wherein said first receiver is adapted to receive said first channel dropped by said first drop module such that said first MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring; and

a second MAC module comprising a second transmitter and a second receiver, wherein said second transmitter is adapted to provide said fourth channel added by said second add module and wherein said second receiver is adapted to receive said third channel dropped by said second drop module such that said second MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

22. (original) The apparatus according to claim 21, wherein said first wavelength based multiplexing/demultiplexing device and said second wavelength based multiplexing/demultiplexing device comprise an optical add/drop multiplexer (OADM).

23. (original) The apparatus according to claim 21, wherein said first channel, said second channel, said third channel and said fourth channel comprise the same optical wavelength.

24. (original) The apparatus according to claim 21, wherein the optical wavelength used by said first channel and said second channel is different than that used by said third channel and said fourth channel.

25. (original) The apparatus according to claim 21, wherein the optical wavelength used by said first channel, said second channel, said third channel and said fourth channel are all different.

26. (original) The apparatus according to claim 21, wherein said first MAC module is connected to an Ethernet device.

27. (original) The apparatus according to claim 26, wherein said Ethernet device comprises an Ethernet switch.

28. (original) The apparatus according to claim 21, wherein said second MAC module is connected to an Ethernet device.

29. (original) The apparatus according to claim 28, wherein said Ethernet device comprises an Ethernet switch.

30. (original) The apparatus according to claim 21, further comprising one or more additional sets, each set comprising a first wavelength based multiplexing/demultiplexing device, second wavelength based multiplexing/demultiplexing device, first MAC module and second MAC module, whereby each set added is assigned a unique operating wavelength.

31. (original) A method of providing Media Access Control (MAC) based transmission in a Wave Division Multiplexing (WDM) optical network, said method comprising the steps of:

providing a first wavelength based multiplexing/demultiplexing device comprising a first add module and a first drop module;

providing a second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module;

providing a first MAC module comprising a first transmitter and a first receiver;

providing a second MAC module comprising a second transmitter and a second receiver;

connecting said first add module to a second fiber ring and said first drop module to a first fiber ring;

connecting said second add module to said first fiber ring and said second drop module to said second fiber ring;

dropping a first channel in a first ingress multi-wavelength input received over said first fiber ring by said first drop module in said first wavelength based multiplexing/demultiplexing device to said first receiver in said first MAC module;

adding a second channel from said first transmitter in said first MAC to a second egress multi-wavelength output transmitted over said second fiber ring via said first add module in said first wavelength based multiplexing/demultiplexing device;

dropping a third channel in a second ingress multi-wavelength input received over said second fiber ring by said second drop module in said second wavelength based multiplexing/demultiplexing device to said second receiver in said second MAC module;

adding a fourth channel from said second transmitter in said second MAC to a first egress multi-wavelength output transmitted over said first fiber ring via said second add module in said second wavelength based multiplexing/demultiplexing device;

wherein said second MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring; and

wherein said first MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

32. (original) The method according to claim 31, wherein said first channel, said second channel, said third channel and said fourth channel comprise the same optical wavelength.

33. (original) The method according to claim 31, wherein the optical wavelength used by said first channel and said second channel is different than that used by said third channel and said fourth channel.

34. (original) The method according to claim 31, wherein the optical wavelength used by said first channel, said second channel, said third channel and said fourth channel are all different.

35. (original) The method according to claim 31, wherein said first MAC module is connected to an Ethernet device.

36. (original) The method according to claim 35, wherein said Ethernet device comprises an Ethernet switch.

37. (original) The method according to claim 31, wherein said second MAC module is connected to an Ethernet device.

38. (original) The method according to claim 37, wherein said Ethernet device comprises an Ethernet switch.

39. (original) The method according to claim 31, further comprising the step of adding one or more additional sets, each set comprising a first wavelength based multiplexing/demultiplexing device, second wavelength based multiplexing/demultiplexing device, first MAC module and second MAC module, whereby each set added is assigned a unique operating wavelength.

40. (original) The method according to claim 31, wherein said first wavelength based multiplexing/demultiplexing device and said second wavelength based multiplexing/demultiplexing device comprise an optical add/drop multiplexer (OADM).

41. (original) A method of providing Media Access Control (MAC) based transmission in an optical network employing Wave Division Multiplexing (WDM), said method comprising the steps of:

providing a wavelength based multiplexing/demultiplexing device comprising an add module and a drop module;

providing a MAC device comprising a transmitter and a receiver;

connecting said add module to a first fiber ring and said drop module to a second fiber ring;

dropping a first channel in an ingress multi-wavelength input received over said second fiber ring by said drop module to said receiver in said MAC module;

adding a second channel from said transmitter in said MAC to an egress multi-wavelength output transmitted over said first fiber ring via said add module; and

wherein said MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

42. (original) A method of providing Media Access Control (MAC) based transmission in an optical network employing Wave Division Multiplexing (WDM), said method comprising the steps of:

providing a first wavelength based multiplexing/demultiplexing device located in a first node, said first wavelength based multiplexing/demultiplexing device comprising a first add module and a first drop module;

providing a second wavelength based multiplexing/demultiplexing device located in a second node, said second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module;

providing a first MAC device comprising a first transmitter and a first receiver, said first MAC device located in said first node;

providing a second MAC device comprising a second transmitter and a second receiver, said second MAC device located in said second node;

connecting said first add module to a first fiber ring and said first drop module to a second fiber ring;

connecting said second add module to said second fiber ring and said second drop module to said first fiber ring;

dropping a first channel in a second ingress multi-wavelength input received over said second fiber ring by said first drop module in said first node to said first receiver in said first node;

adding a second channel from said first transmitter in said first MAC device to a first egress multi-wavelength output transmitted over said first fiber ring via said first add module in said first node;

dropping a third channel in a first ingress multi-wavelength input received over said first fiber ring by said second drop module in said second node to said second receiver in said second node;

adding a fourth channel from said second transmitter in said second node to a second egress multi-wavelength output transmitted over said second fiber ring via said second add module in said second node; and

wherein said first MAC device in said first node transmits and receives data to and from said second MAC device in said second node on the same segment of said first fiber ring and said second fiber ring.